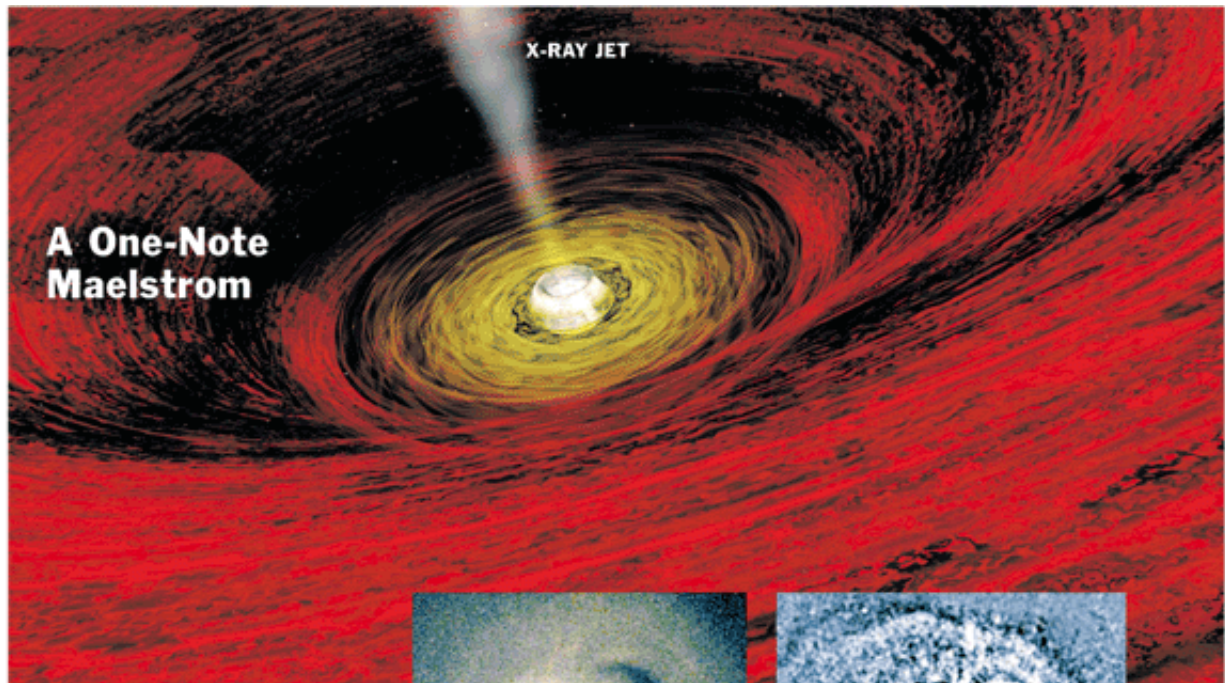


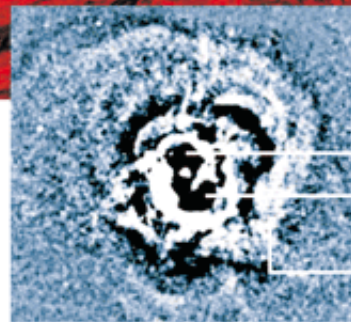
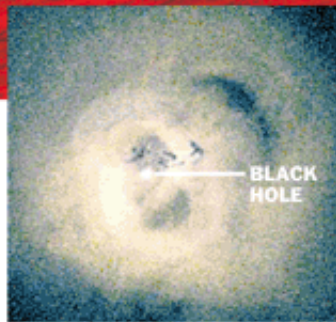
The New York Times

September 16, 2003



A supermassive black hole in the Perseus galaxy cluster is emitting sound waves 30,000 light-years across — a cosmic hum in B flat.

X-ray jets from the center of the hole create bubbles of high energy that push aside gases and make the giant waves.



X-ray view of the Perseus cluster (left), and enhanced to show sound waves.

Sources: Chandra X-Ray Center, Harvard-Smithsonian Center for Astrophysics, NASA

The New York Times; simulation image at top by Chandra X-Ray Center/A.Hobart; others by NASA

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